



THE UNIVERSITY OF
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SCHOOL OF
Earth & Geographical
SCIENCES

Earth Science Resources: where to find them and how to use them

Websites
Catalogues
Loan sets
Maps
Excursions
Books
Videos
PD courses





Geoscience Course Resources

<http://www.uh.edu/~jbutler/anon/anoncoursessub.html>

This site lists **hundreds** of geological courses freely accessible on the internet. Many are university introductory courses and are excellent.

[Economic Geology](#)

[Environmental](#)

[Geochemistry](#)

[Geology of National Parks](#)

[Geology and the Internet](#)

[Hydrogeology](#)

[Geophysics](#)

[Glacial Geology](#)

[Historical Geology](#)

[Mathematical/Computer Geology](#)

[Mineralogy](#)

[Oceanography](#)

[Paleontology](#)

[Petroleum Engineering](#)

[Petrology](#)

[Physical Geology](#)

[Introductory Sed/Strat/Geomorph](#)

[Space Geology](#)

[Remote Sensing](#)

[Structural Geology](#)

Geoscience K-12 Resources

<http://web.cuug.ab.ca/~johnstos/geosci.html>



This site lists hundreds of links, divided into usefulness for various grades of teaching.

Some have more of a Canadian bias, but there are countless ones which are useful and which you would never think of doing a Google search for.



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Volcanoworld

<http://volcano.und.novak/vw.html>

Volcanoes

Teaching & Learning

Interviews

Current Eruptions

VW Index

Ask A Volcanologist

Today in Volcano History

Volcano Mall

Volcano Workshops

Kids' Door

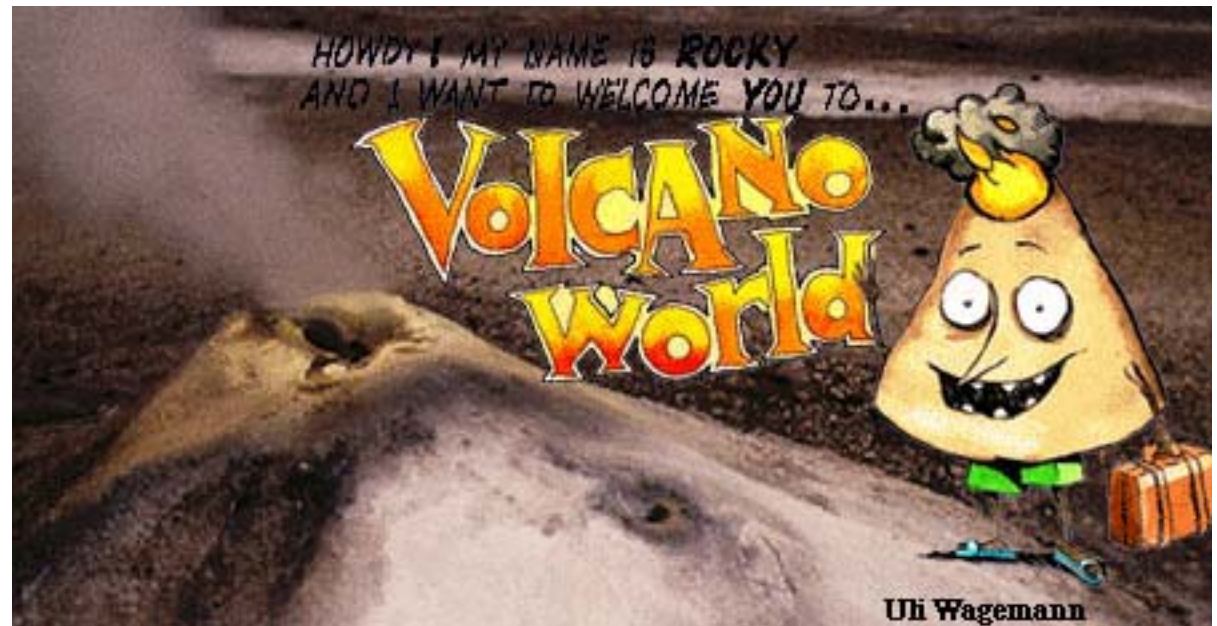
Volcano Adventures

Reader Comments

Mt. St. Helens

Awards

VW Team





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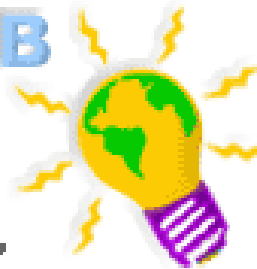


US Geological Survey website

<http://pubs.usgs.gov/education>

THE LEARNING WEB

Welcome! The Learning Web, part of the USGS Web site, is dedicated to K-12 education and lifelong learning. Explore things on, in, around, and about the Earth, such as land, water, plants, animals, and maps.



Lesson plans and activities for teachers to use in the classroom.

[Lesson Plans & Activities](#)

Teach with innovative activities.

[Paper Models](#)

Classroom projects can be fun!

[Earth Hazards](#)

[Water](#)

[Plants & Animals](#)

[Maps & Images](#)

[Rocks & Images](#)

[Real-time Info](#)

[Ecosystems](#)

[Natural Resources](#)



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UK Geological Society website

www.geolsoc.org.uk/template.cfm?name=EIOH

Downloadable colour leaflets

[No 1 Earthquakes](#)

[No 2 Flooding](#)

[No 3 Landslides](#)

[No 4 Volcanoes](#)

[No 5 Radon](#)

[No 6 Tsunamis](#)

[No 7 Coastal Erosion](#)

[No 8 Contaminated Land](#)

[No 9 Landfill & Waste](#)

[No 10 Groundwater](#)

[No 11 Aggregates](#)

[No 12 Marine Aggregates](#)





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Joint Earth Sciences website

<http://www.chemsoc.org/networks/learnnet/jesei/>

Joint Earth Science Education Initiative

Earth science for biology, chemistry and physics teachers



Bring your Earth science teaching to life.

Highlight the relevance and interest of Earth science to your pupils.

Try our hands on, interactive practical activities.

Build up your own background knowledge.



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USA Berkeley website

<http://www.ucmp.berkeley.edu/help/timeform.html>

TAKE OUR
WEB GEOLOGICAL TIME MACHINE



Click on any of the geological time periods to learn all about them and their fossils.

Visit the Geology Wing for sections on geology topics like Plate Tectonics, which has some excellent animations of plate movements.

Geological Society of Australia website

www.gsa.org.au

Earth Science Freeware

Mineral Deposits

Energy Resources

Geological Processes

Weather and Climate

Earth Science Field Skills

Palaeontology / Fossils The

Young Palaeontologist Page

Geological Time

Space Science

Rocks and Minerals

Geological Structures

News / Opinions

Careers

Free Self-education Earth
Science Course

Teacher's
Page/Contributions

Great Earth Science Links

When Good Rivers Turn
Bad- Flooding

The Learning Place

Image Processing - using
satellite images

UK Earth Science Education Unit

www.earthscienceeducation.com

[Worksheets for all ESEU workshops available to download](#)

[ESEU Virtual Rock Kit - view common rock types at different scales](#)

[List of all geological materials needed to teach ESEU workshops \(pdf file\)](#)

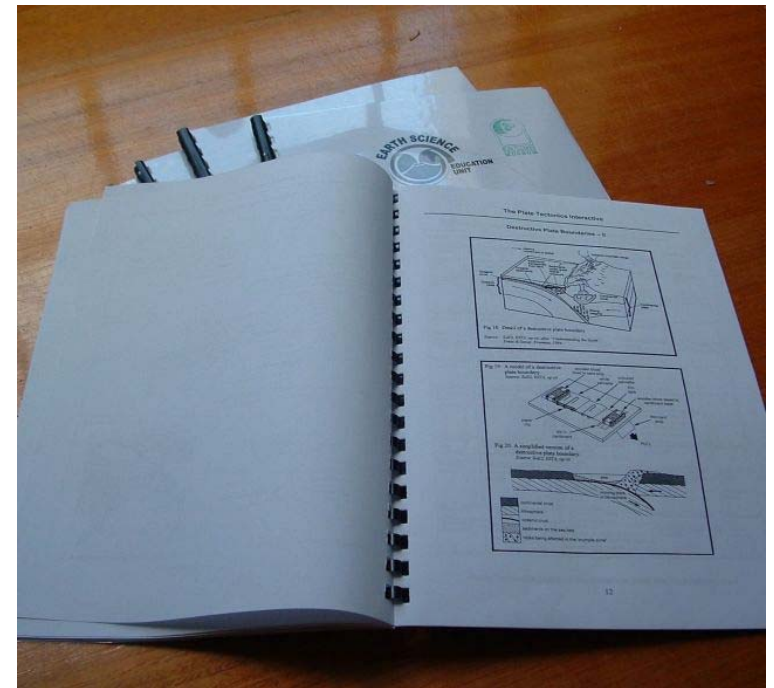
[Equipment and supplier lists](#)

[ESTA resources for schools](#)

[JESEI \(Joint Earth Science Education Initiative\) website - teaching ideas for physics, chemistry and biology teachers](#)

[Some useful web links](#)

[Textbook recommendations and reviews](#)





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Women in Mining

www.womeninmining.org



Women in Mining

Mineral Resources for Teachers

Women In Mining is dedicated to educating students, teachers and the general public about the importance of minerals.

[About Minerals](#)

[Activities](#)

[Games](#)

[About WIM](#)

[WIM Education Foundation](#)

[Mineral Education Links](#)

[WIM 2001 Booklet](#) - downloadable worksheets

[WIM 2000 Booklet](#) - downloadable worksheets



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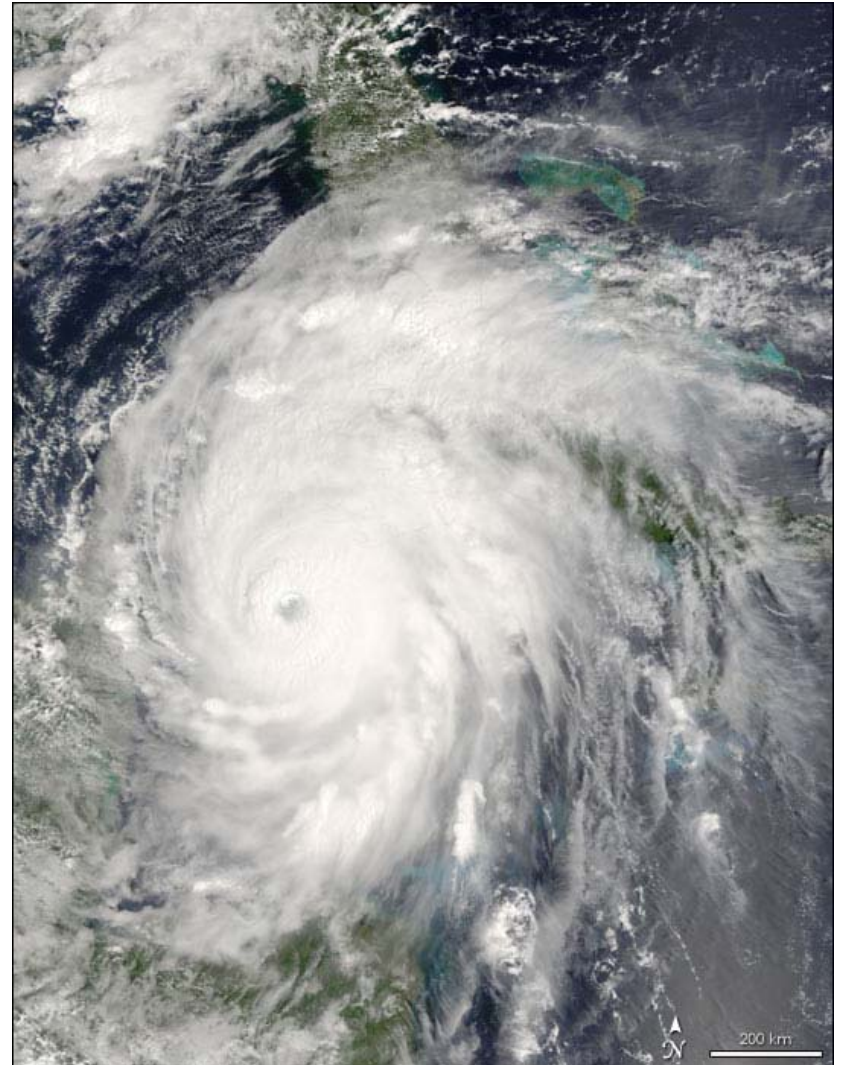
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NASA website

<http://earthobservatory.nasa.gov/Newsroom/>

Downloadable images of
everything from
volcanoes to the
weather, with text and
discussion





My Favourite Website

<http://www.visions-of-science.co.uk/winners2003/win-31.htm>

All the water and air in the world

Dr Adam Nieman

The finite nature of the world's water and air resources is shown on these scale models.

On the left, **all the world's water** (some 1.41 billion cubic kilometres) is shown as a ball covering central Europe.

On the right, **the entire atmosphere** (5140 trillion tonnes) at sea level pressure is a slightly larger ball.





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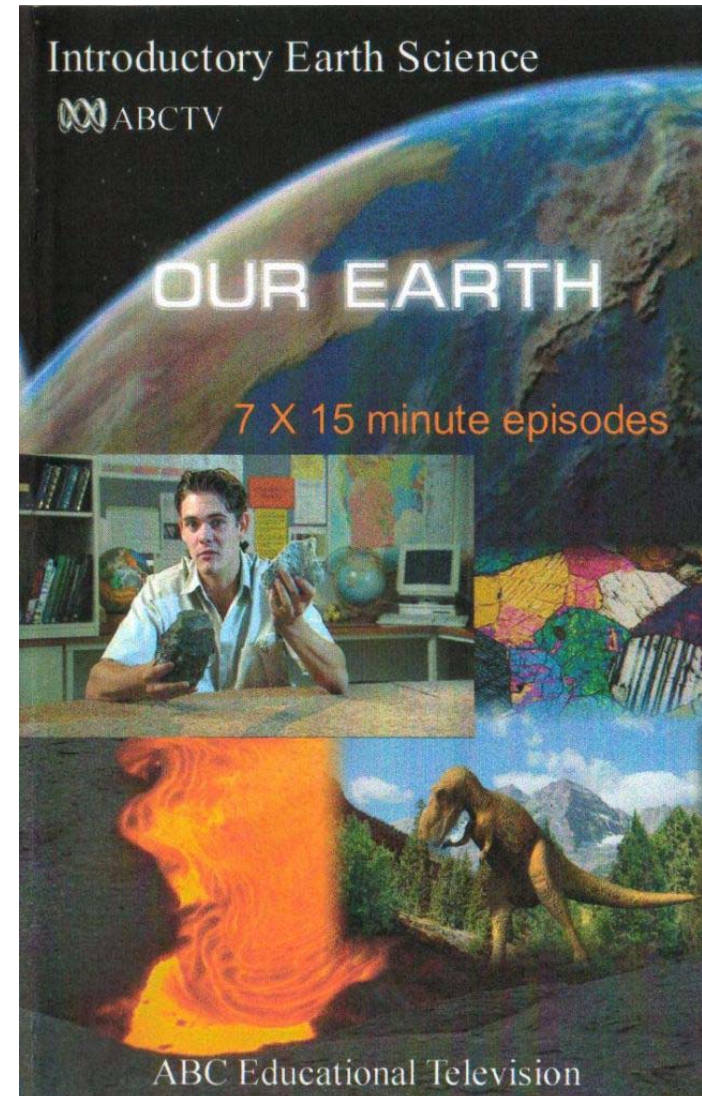
ABC video

<http://www.abc.net.au/schoolstv>

Downloadable worksheets are available for each 15 minute episode.

1. How old is it?
2. Fossils
3. The fires below
4. Pushing and shoving
5. Wear and tear
6. Rock recipes
7. Who needs geology?

The video is expensive: I have a loan copy.





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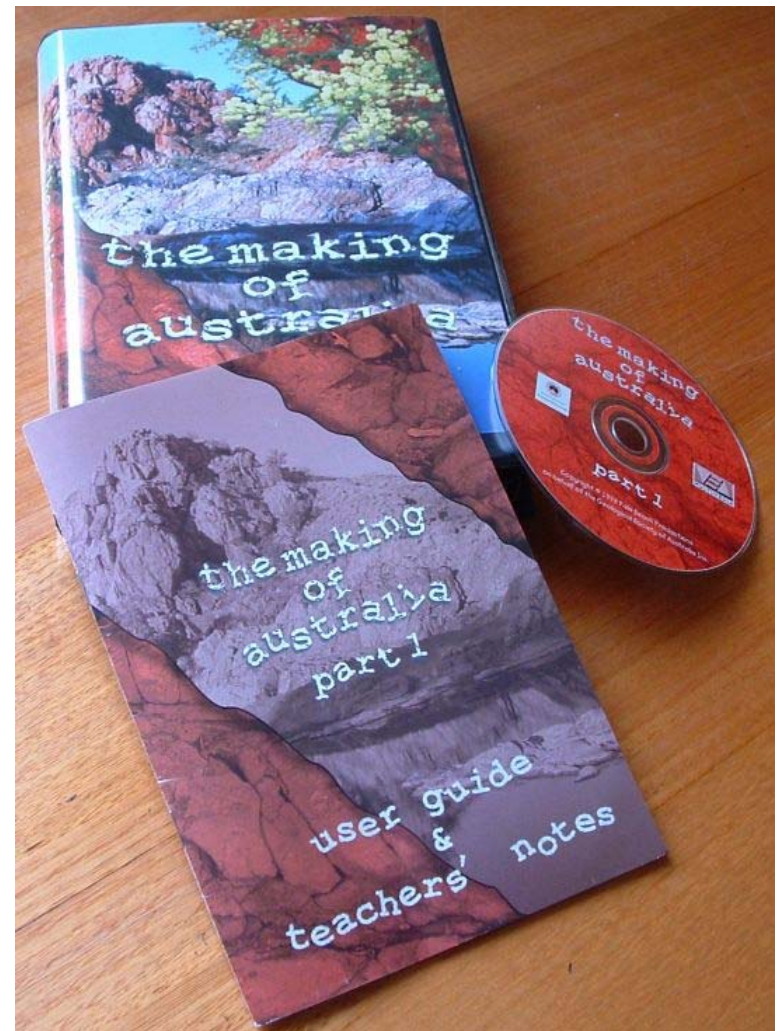
GSA Interactive CD-ROM

www.gsa.org.au

An interactive CD-ROM which has exercises based around three Australian localities: the Pilbara, the Flinders Ranges and the Blue Mountains.

Although very attractive and interesting, It is not easy to use in a class situation but gives a good introduction to some geological topics for teachers and ideas for exercises and would be good for keen students.

May be purchased via the website, or you can borrow my copy.





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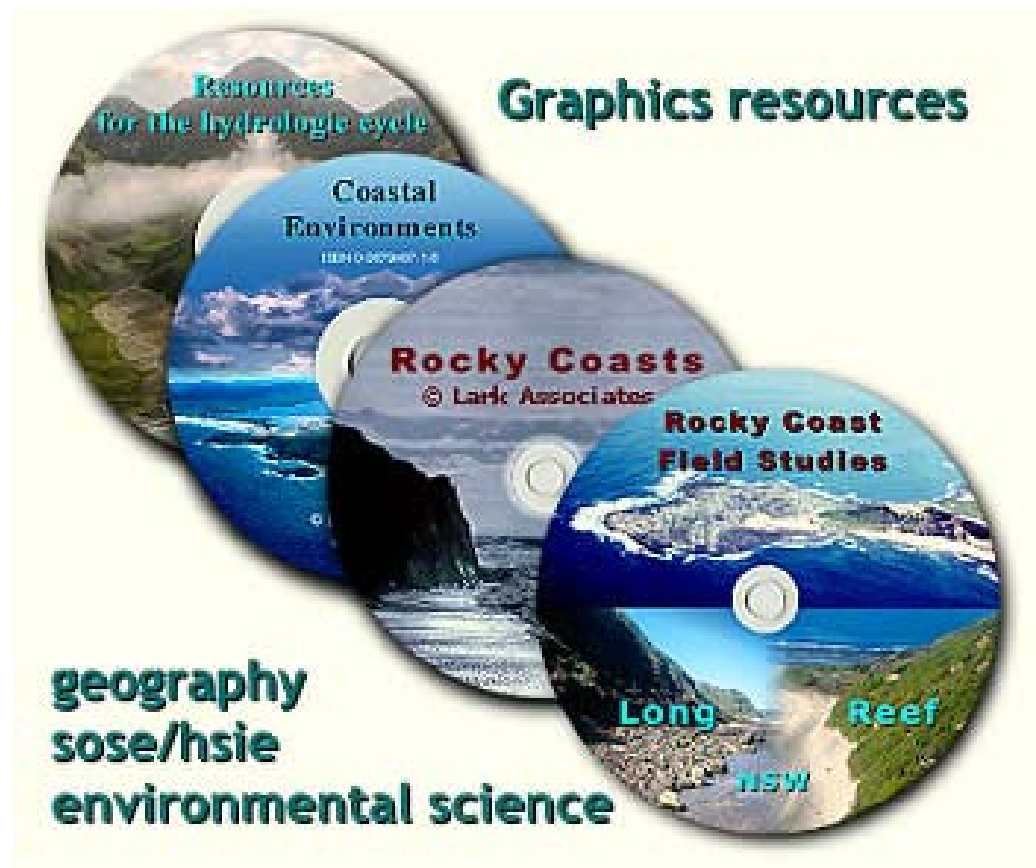
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Larkit Interactive CD-ROMs

www.larkit.com.au

A selection of CD-ROMs designed for full-screen display or data projector. Content is excellent and designed to be used by teachers and by senior high school students.

May be previewed and purchased via the website.



Mineral Information Centre

<http://www.cmewa.com>

Education Resources: Minerals and Energy Industry

Fact Sheets

A number of **Fact Sheets** on various economic mineral resources have been developed by CME for both students completing projects on the minerals and energy industry and the general public looking for information.

Curriculum Resources

A number of **Curriculum Resources** suitable for K-12 students have been developed by CME to support educators in their teaching/learning programs.



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Geological Survey of WA

<http://www.doir.wa.gov.au/GSWA/index.asp>

Products and Services

Online Geoscience Databases

Hot off the Press News and Events

Discover Geology

Commodities Fact Sheets

Life of a Gold Mine

Making Maps

Meteorite Impacts Stromatolites

Useful Links

Visiting Geological Sites

Key Contacts



Many products such as maps can be downloaded free.

See also the main DOIR page:

www.doir.wa.gov.au



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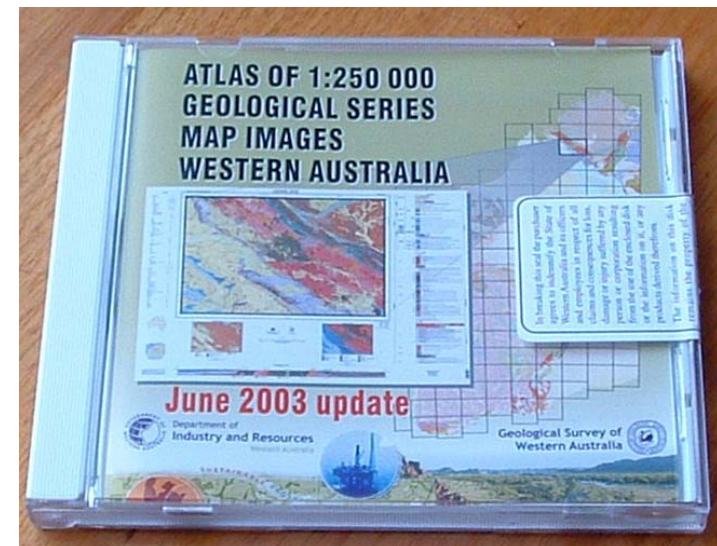
Geological Survey of WA: Maps

The **1: 50 000 Environmental Geology series** is available for the Perth area and Albany. These are particularly useful: they show the streets and geology in detail, and have a separate Geomorphology map, cross-sections of the geology, and a map of boreholes showing rock thicknesses to scale.

This CD-ROM is inexpensive and contains searchable and downloadable Geology Maps covering the whole of the State

Many products such as maps can be downloaded free.

<http://www.doir.wa.gov.au/GSWA/index.asp>





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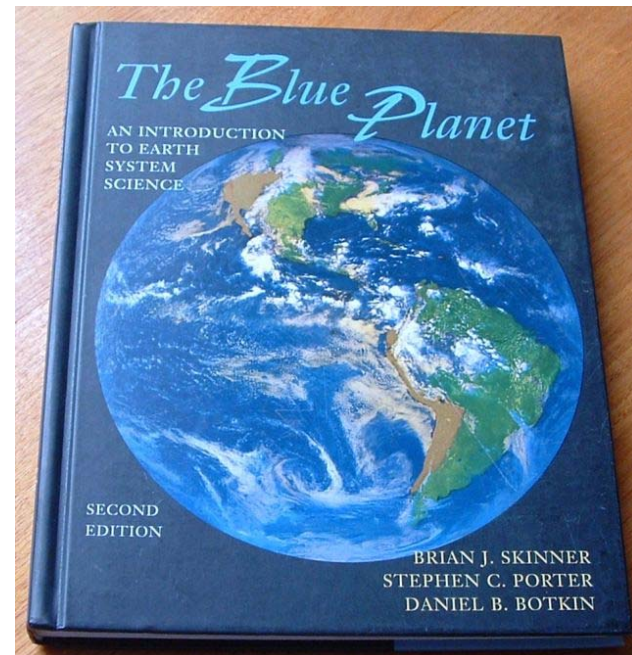
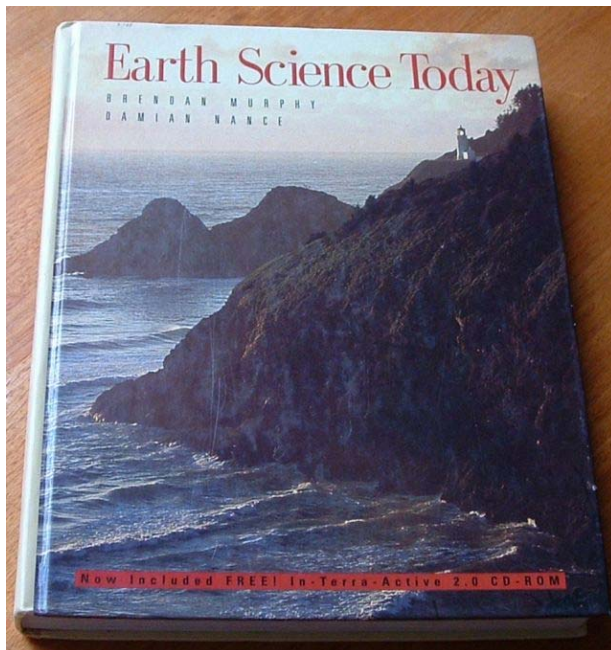
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Geology textbooks

UWA uses “Earth Science Today” as its first year text. This deals holistically with: the solid Earth; the hydrosphere; the atmosphere; the evolution of Earth systems and the biosphere; astronomy and planetary science; natural resources; Earth science and the environment.

Brendan Murphy, Damian Nance, 1999, Brooks/Cole, full-colour
684 pages plus CD-ROM ISBN 0-534-52182-7

“The Blue Planet” is similar and has been used in the past.





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Geology textbooks

The Steve Parrish popular book: “Amazing Facts about Australian Landforms” is an extremely useful and accurate introductory book on Earth Science with attractive illustrations.

A4-size and full-colour, this 80 page book includes:

Formation of the Earth

Igneous Rocks

Sedimentary Rocks

Metamorphic Rocks

Weathering and Erosion

Folding and Faulting

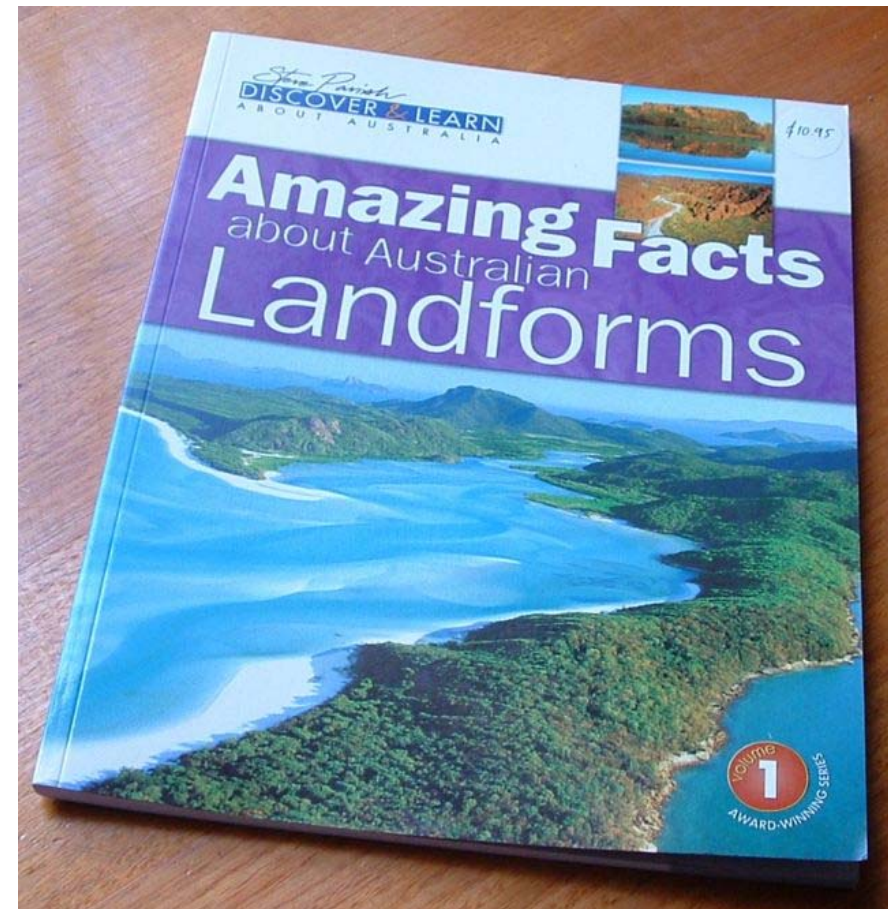
Rivers, Lakes and Coastal

Deserts

Geology of some Australian landmarks e.g. Ayers Rock

Biodiversity

Glossary





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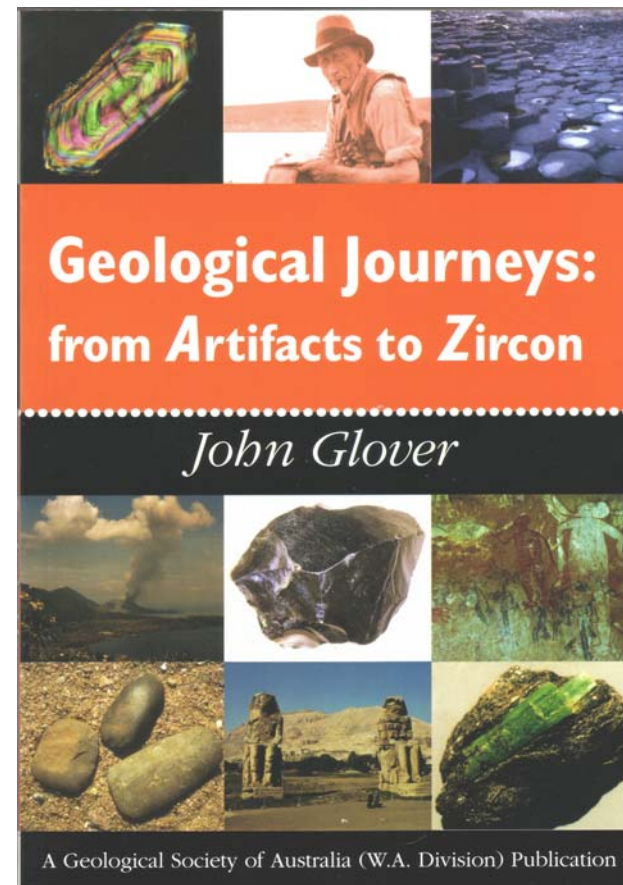
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Geology textbook with a difference

www.earthmuseum.segs.uwa.edu.au

Since the beginnings of humankind, geology has affected everyone's daily life. Myths and legends give us clues to natural disasters such as earthquakes and volcanic eruptions in the remote past: science helps us to avoid the worst effects of such disasters today. Primitive artists were the first exploiters of our mineral wealth, and the rise and fall of civilisations can often be linked to their location on the Earth's patchwork crust.

We made this book for the general public and to help teachers. It contains 41 chapters on quirky geological topics which can act as "hooks" to hang a lesson off.



\$15 including GST

Geology textbooks for reference

www.earthmuseum.segs.uwa.edu.au

The Earth Science Museum at UWA has a large collection of books on all aspects of Earth Science which can be consulted by visitors while the Curator is there.

There is also a library of files and books of “hands-on” activities to consult and copy.

The full set of **1: 250 000 geology maps of the State** is available for reference: this includes the information booklets for each area.

The Curator is able to advise on a wide range of geological topics.

See the Museum website for some downloadable factsheets.

You can use a photocopier (15c cash or cheque per A4 sheet)



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Geology catalogues

<https://www.ga.gov.au/education/teachers/>

The Geoscience Australia catalogue is no longer available in printed form: you have to go to the website and download it.

Resources

[Primary and Secondary teacher resource materials](#)

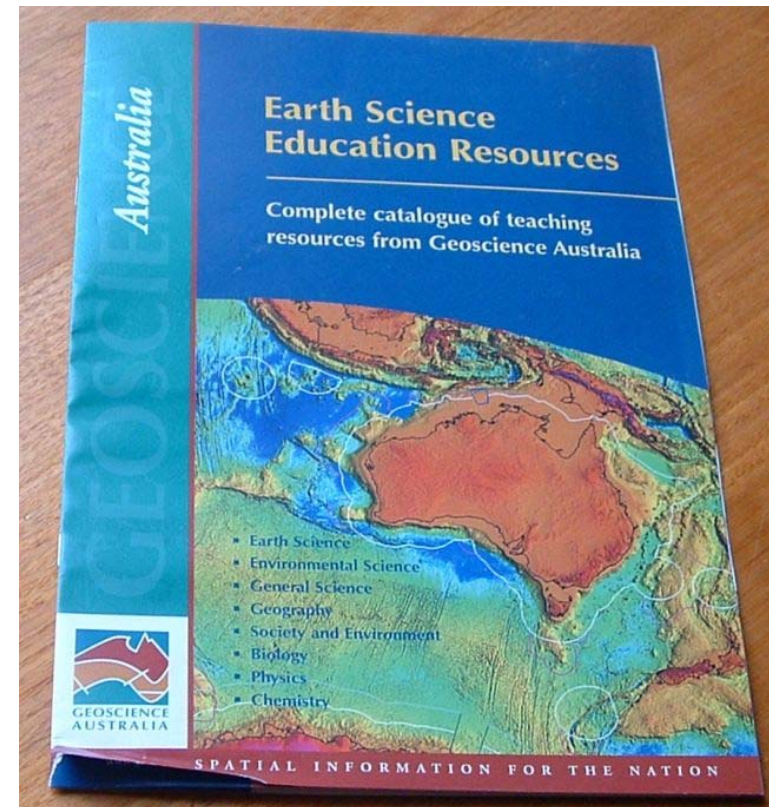
[Minerals Downunder Factsheets & Interactive Quiz on-line](#)

[Remote Sensing Image Processing activities on-line](#)

[Glossary of Geoscience terms](#)

[The Geoscience Australia Earth Science Education Centre](#)

[Earth Science Resources: New Fossils](#)





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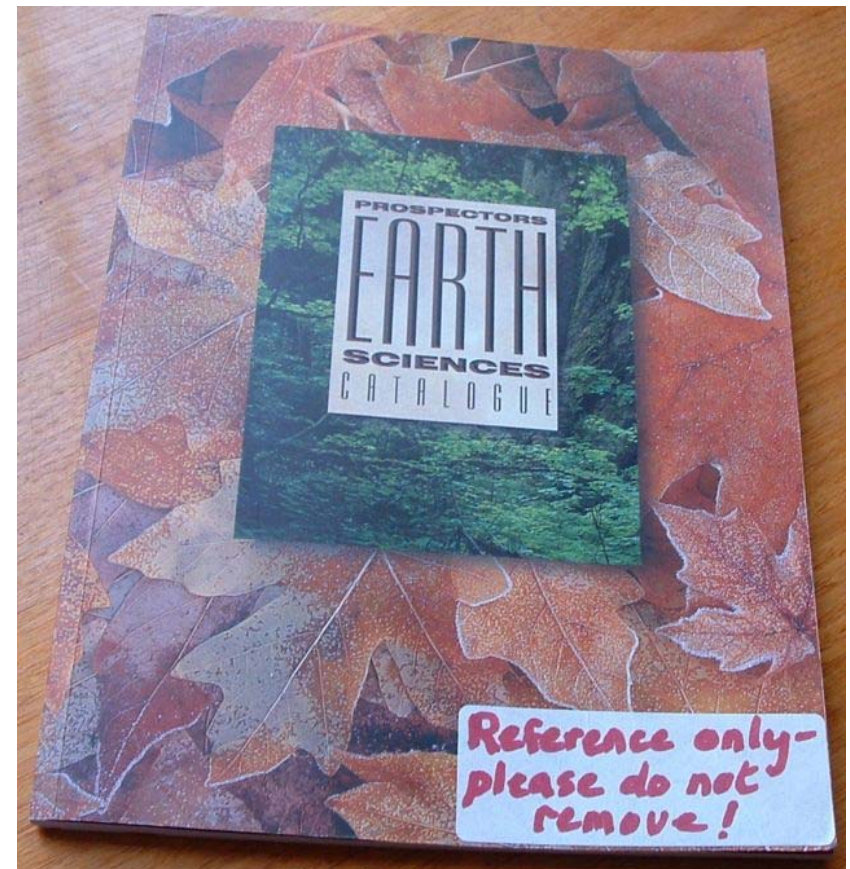
Geology catalogues

<http://www.earthsciences.com.au>

Prospectors Earth Sciences do mail order,
usually within 24 hours.

They sell everything for
geology from microscopes to
hammers, lab gear, sieves,
safety gear, compasses, UV
lamps, you name it, they have
it. They also stock geological
books and posters.

I have copies of their
catalogue. Go to the website
to download current pricelists.



Mineral Information Centre PD

<http://www.cmewa.com>

Professional Development (Economic Resources of WA)

The Chamber of Minerals and Energy (CME) offer free professional development (PD) workshops for primary and secondary teachers of Society and Environment, Science and Technology and all student teachers.

CME's workshops are designed to support the outcomes of the Western Australian Curriculum Framework, increase awareness of and provide content knowledge of the Western Australian minerals and energy industry and demonstrate practical classroom application of a range of curriculum materials and resources

All sessions are held at CME's Minerals Information Centre (MIC) on the Ground Floor at 12 St Georges Terrace Perth.

Geoscience Australia PD Days

<https://www.ga.gov.au/education/teachers/workshops.jsp>

Professional Development Workshops & Excursions

Geoscience Australia Education operates a series of teacher professional-development sessions in Australian capital cities and some major centres. These sessions workshop the uses of our teacher resources in the class room. All workshops are \$35 (includes GST) and include copies of the teacher resources. Each workshop participant receives a copy of the resource book together with other useful materials.

Geoscience Australia also runs a week long professional development excursion to Hawaii called Project LAVA where the many aspects of volcanism and natural hazards are examined in detail.



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UWA / GSA(WA) PD Days

www.earthmuseum.segs.uwa.edu.au

In Earth Science Week each year, this FREE PD full-day workshop combines short talks on eight key topics, with “hands on” sessions looking at specimens and enjoying other activities. It is held in the Geology Teaching Laboratory and Earth Science Museum in the heart of the beautiful UWA campus next to the river, easily accessible by public transport. Participants get a basic manual with useful diagrams covering the outline of the course, a big bag of resource material and information on Earth Science teaching resources and activities.

“TEACHING THE DYNAMIC EARTH”

How the Earth Recycles its Rocks

The Restless Earth: Plate Tectonics

MORNING TEA

Kingdom of Fire: Igneous Rocks

Ancient Environments: Sedimentary Rocks

LUNCH (and time to see the Museum)

Life in the Past: Fossils

Rocks Transformed: Metamorphic Rocks

AFTERNOON TEA

Riches of the Earth: Ores and Minerals

The Earth beneath our feet: Geology of WA.



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UWA Loan Sets (1)

www.earthmuseum.segs.uwa.edu.au

The **Economic Minerals set** includes good-sized specimens of nearly three dozen important ores and other economic resources. The labels are in two parts, one naming and describing the mineral, and the other as a jig-saw piece describing what it is used for. The students can match the pieces.





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UWA Loan Sets (2)

www.earthmuseum.segs.uwa.edu.au

Geology at Home includes a poster showing a cut-away house and surrounds with 26 numbered locations. Two dozen numbered boxes contain raw materials used in those locations. Students find the appropriate numbered box and see the list of resources and where used inside the lid as well as being able to touch the labelled samples.



UWA Loan Sets (3)

www.earthmuseum.segs.uwa.edu.au

Metamorphic Rocks includes five class sets of pairs of good-sized hand specimens of typical metamorphic rocks and the kinds of rocks from which they formed. Observations can be made of the changes which have taken place to form them.

Fun Rock Sets are boxes of 45 or so interesting and attractive specimens each with a colour-coded label. Students are encouraged to sort the specimens by various criteria: colour, weight, shininess and so on. When sorted by colour of label there are four groups: igneous, metamorphic, sedimentary and ores.

Schools have used these in various ways, linking in to art, English classes (what adjectives can we use?) even (preschool) making their own “Museum” with children having a chance to be “Curator” and “Visitors”.

Sets of **Typical Rocks** or **Typical Minerals** can also be lent.

It is customary for a donation (\$5 or \$10) to the Earth Science Museum to be made by borrowers: you can get a receipt.



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UWA Loan Sets (4)

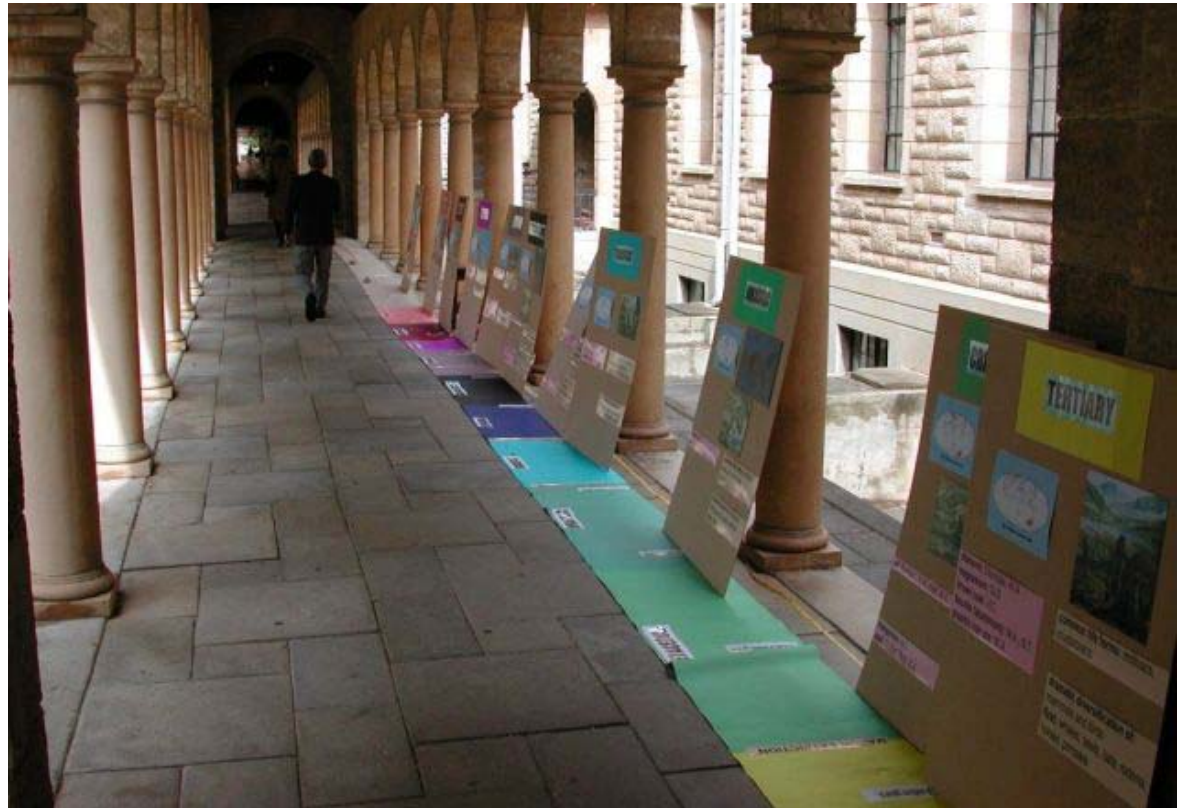
www.earthmuseum.segs.uwa.edu.au

The Geological Timeline

A set of boards with pictures and information on each geological period, colour-coded to match the standard timescales.

Set these up using a 100m measuring tape (may also be loaned) to represent the whole of geological time. Historical time on this scale is a mere **2 millimetres!**

Students can pace out different geological events, dinosaurs etc. The full distance is longer than you expect!





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UWA Earth Museum Visits

www.earthmuseum.segs.uwa.edu.au

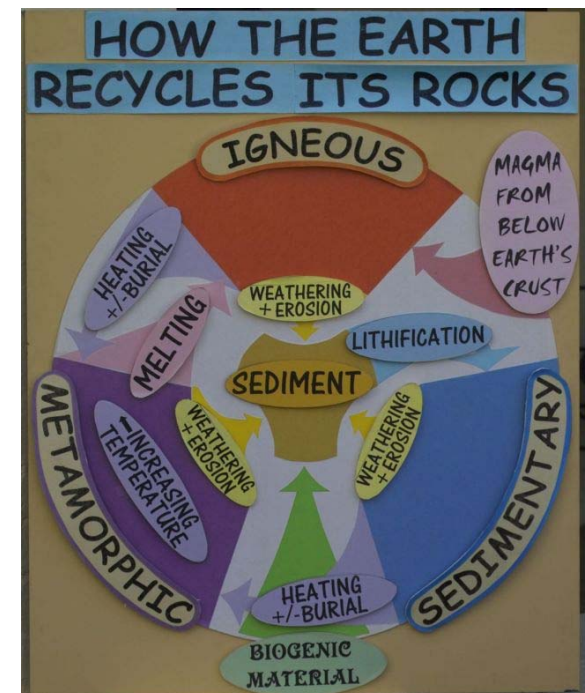
Available: Normally on weekdays between 9.30am and 5.00pm, by prior arrangement with the Curator. Visits to the Museum not requiring the Curator's involvement can be made on Mondays, Wednesdays and Fridays between 9.30am and 5.00pm. The Museum is closed at lunchtimes (normally 12.30-1.30pm) and whenever the Curator is not present, so it is *essential* to check with her beforehand that the Museum will be open for your visit.

Possible Activities:

- an introduction to the Rock Cycle: "How the Earth recycles its rocks" (brief illustrated talk)
- hands-on mineral identification by properties or a hands-on "Minerals in Pegmatites" study
- tour of the Rock and Mineral Gallery with the Curator, discussing minerals and rock types
- "Sands Ain't Sands" microscope exercise (there may be a charge for this)
- general worksheet covering Museum and Department foyer didactic displays

A fossils-orientated programme is also available, and other requirements can be discussed with the Curator.

Visits are normally free but donations are welcome.





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Petroleum Club Schools Visits

www.petroleumclub.org.au

The **SIP Challenge** involves school groups preparing a presentation (in any format) during Term 2 or 3. The classes attend talks by visiting speakers on petroleum topics and “**Field Trips**” to other institutions, of which the E de C Clarke Earth Science Museum is one. We do a microscope-based activity and hands-on experiments which are both relevant to the petroleum industry.

Using the information gained during the programme the groups devise their **presentations** which must address various criteria. These are judged and term winners go to the Grand Final in September.

There are 5 **Student Team prizes** which include, for example, the **whole group** being flown to a petroleum industry plant in **Karratha** for a couple of days visit, or to **Barrow Island**, and certificates, books, trophies and plaques for participants.



Mineral Information Centre Visits

<http://www.cmewa.com>

The Minerals Information Centre **hosts school groups** run by their Education Officer. They also help organise other site visits.

Alcoa World Alumina Australia: Huntly - Pinjarra Tours

A two and a half hour tour of mining, refining and mine site rehabilitation.

Tour commences Pinjarra Refinery Tour Reception Centre

Wednesday - 1.00pm Bookings required (08) 9531 6752

Complimentary coach services to Pinjarra are available departing:

1. Transperth bus stop in Sutton St, Mandurah at 12.15pm
2. Pinjarra Tourist Information Centre (Edenvale) George St, Pinjarra at 12.30pm

School and Group Tours Tours for schools, groups or clubs can be arranged by contacting the Tour Coordinator.

Iluka Resources Pty Ltd: Eneabba and Capel Tours

Mineral sands resource.

Tours are provided to cater for a range of groups including industry delegations, schools, special interest groups, charity groups and tourists.



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Geological Sites in Perth Visits

<http://wa.gsa.org.au/publications/publications.html>

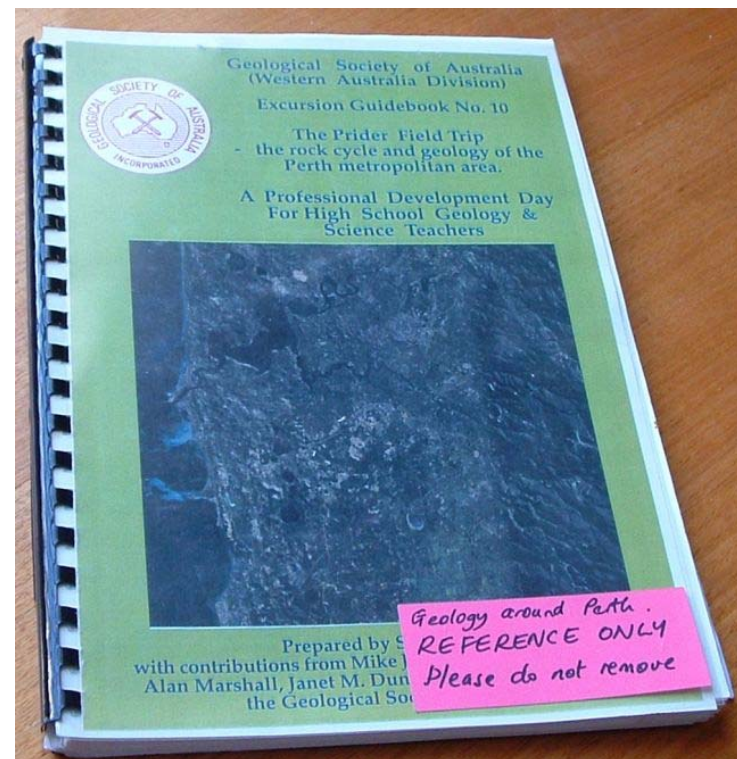
You can download, free, two publications from this webpage of the Geological Society of Australia (WA Division).

Interaction of Land Use, Water Supply and Geology on the Swan Coastal Plain Commander, D. P., 1994, 24pp.

Prider Field Trip – the rock cycle and geology of the Perth metropolitan area.

A Professional Development Day for High School Geology and Science Teachers. Moss, S. J., Freeman, M., George, A. D., Marshall, A., & Dunphy, J. M., 1998, 72pp.

This has descriptions of some field trips in the Perth area.





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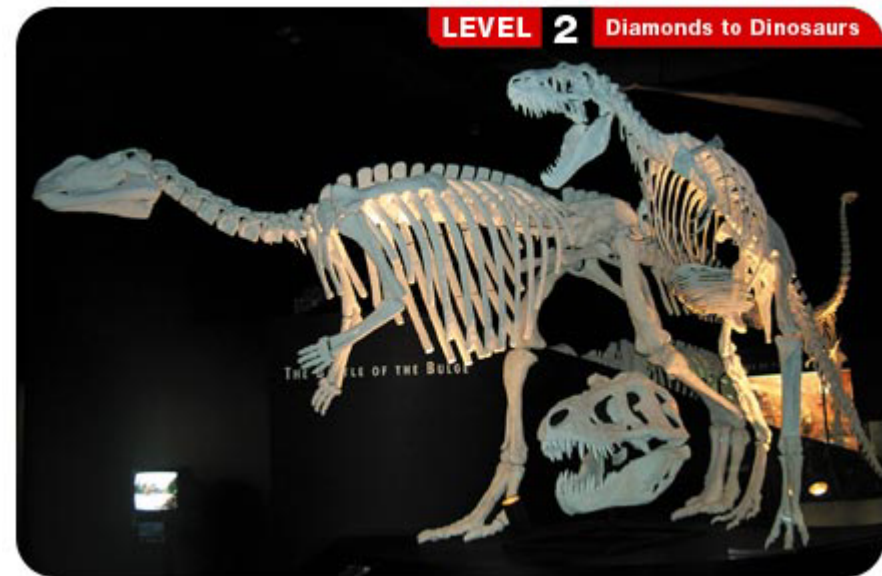
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WA Museum Visits

www.museum.wa.gov.au/

The WA Museum has an Education Section who deals with visits by schools: contact them to find out about organised programmes or just a visit to the galleries. The “Diamonds to Dinosaurs” Gallery is a spectacular free resource.

Journey through time from the origins of the universe 12 plus billion years ago to the birth of our Solar System and the evolution of life on Earth. As well as rocks, minerals and fossils, you can find a tube containing about 10 million pre-solar diamonds and see our world famous meteorite collection and rocks from Mars and the Moon.





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Come and see me at the Museum

I am happy to help anyone with geological queries. My working hours are usually **8.30am through to 5.30pm**, and my lunchtime is usually 12.30-1.30pm. The Museum is open on Mondays, Wednesdays and Fridays, but you can see me outside these times. ***Let me know if you are making a special journey, since if I have to be at a meeting or elsewhere then the Museum is closed.***

We open the Museum on Sunday afternoons, thanks to the voluntary help of the Friends of the Museum who enjoy talks, workshops and field trips in return. However, the Rock & Mineral Gallery and foyer displays are not accessible on Sundays.

SEE MY WEBSITE FOR DETAILS!

